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10/655,535	09/05/2003	Naveen Kumar Kakani	59864.01073	5576

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/655,535	KAKANI, NAVEEN KUMAR
Office Action Summary	Examiner	Art Unit	
	Dung Lam	2617	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _5/30/07_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-20_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

2.   Claims **1 and 10** are rejected under 35 U.S.C. 102(e) as being anticipated by

Zimmerman et al (US Patent No. 6785252).

3.   Regarding **claim 1**, Zimmerman teaches a method, comprising: estimating traffic

in an uplink; and allocating uplink resources based on said step of estimating (step 936,

the base station performs an estimate of the uplink traffic to allocate uplink bandwidth,

Col. 24, lines 26-29); wherein the step estimating (Step 934 bandwidth request made by

the CPE. A bandwidth request reads on an estimate of uplink traffic because at this

point in time, the CPE is only estimating how much traffic it might uplink then the BS

eventually will grant/allocate the uplink bandwidth to the CPE based on not only the

CPE request/estimate but also other network conditions and available resources.

Thus the bandwidth request only reflects an estimate of the amount of uplink traffic,

C24 L65- C25 L5) is performed immediately following the transmission of a signal in a

downlink (Step 932, "an individual poll signal" originating from a BS to a CPE reads on

as a "downlink signal". Step 934 of requesting an estimate bandwidth occurs

immediately following Step 932 which is a downlink "poll" signal from the base station,

similar concept is shown in Fig. 5 Step 508 – 518).

4.   Regarding **claims 10**, it is an apparatus claim corresponding to claim 1. Therefore, it is

rejected for the same reasons as claim 1 respectively (see claim 1 above).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims **2, 11 and 21-22** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Wallentin et**

al. (US Publication 2005/0013287).

7.   Regarding **claim 2**, Zimmerman teaches a method according to claim 1 (see

claim 1 above). However, Zimmerman fails to expressly teach that the step of

associating the traffic with a bulk transmission control protocol uplink data transfer, and

estimating the traffic in the uplink for a given transfer block to be identical as for a

previous transfer block. In an analogous art, Wallentin teaches a type of bulk

transmission control protocol traffic, which is known in the art to be bursty and

asymmetric (Col. 4, paragraph 36). Furthermore, Wallentine discloses a method of

using the content of received data packets sent in the uplink or downlink to make

predictions of the expectable traffic on the uplink or downlink (Col. 3, paragraph 33),

thereby suggesting that uplink traffic can be estimated based on the previous sent data.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time

of the invention was made to provide a method of bandwidth allocation of an uplink of

bulk transmission control protocol traffic type to be based on the estimation of the

previous data transfer block to utilize radio resource more efficiently.

8.   Regarding **claims 11**, it is an apparatus claim corresponding to claim 2.

Therefore, it is rejected for the same reasons as claim 2 respectively (see claim 2

above).

9.   Regarding claims 21-22, they are system claims that correspond to method

claims 1 and 2 respectively, therefore, they are rejected for the same reasons as

claims 1-2.

10.   Claims **3 and 12, 23** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Wallentin**

et al. (US Publication 2005/0013287) in further view of **Love et al.** (US Publication

2004/0219917).

11.   Regarding **claim 3**, Zimmerman teaches a method according to claim 1 (see

claim 1 above). However, Zimmerman fails to teach a step of associating the traffic

with a bulk transmission control protocol downlink data transfer, and wherein the

estimating step comprises estimating the traffic in the uplink for a given transfer

block to be an acknowledgement of the traffic in a downlink. In an analogous art,

Wallentin teaches that one of the expected major protocol is transmission control

protocol which can have two type of data: "interactive" or "background" which is also

known in the art as bulk transmission control protocol since it is characterized as

bursty and asymmetric (Col. 4, paragraph 36). Therefore, it would have been

obvious to a person of ordinary skill in the art at the time of the invention was made

to have a bandwidth allocation that account for the characteristics of bulk

TRANSMISSION CONTROL PROTOCOL to have a more robust and versatile

allocation scheme that can handle bulk transmission control protocol data. In

addition, Love teaches a method of making use of the acknowledgement to

determine the uplink transmission activity (Col. 7, paragraph 64). It is also known in

the art, that in transmission control protocol transmission, ACK is used to detect

congestion and thus the system stops sending more packets if ACK is not received.

Therefore, it would have been obvious to a person of ordinary skill in the art at the

time of the invention was made to estimate the uplink traffic based on the

acknowledgement of the downlink traffic to increase resource efficiency.

12.   Regarding **claims 12**, it is an apparatus claim corresponding to claim 3.

Therefore, it is rejected for the same reasons as claim 3 respectively (see claim 3

above).

13.   Regarding claims 23, it is a system claim that corresponds to method claim 3.

Therefore, it is rejected for the same reasons as claim 3.

14.   Claims **4 and 13, 24** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Wallentin**

et al. (US Publication 2005/0013287) in further view of **Haartsen** (US Publication 2005/0048985).

15.   Regarding **claim 4**, Zimmerman teaches a method according to claim 1 (see claim 1 above). However, Zimmerman fails to teach a step of associating the traffic with an interactive transmission control protocol data transfer, and wherein the step of estimating comprises estimating the traffic in the uplink to be identical to the traffic in a downlink. In an analogous art, Wallentin teaches that one of the expected major protocols is TCP, which can have two type of data: "interactive" or "background". (Col. 4, paragraph 36). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to have a bandwidth allocation that account for the characteristics of bulk TCP to have a more robust and versatile allocation scheme that can handle interactive TCP data.   In another analogous art, Haartsen teaches a method of radio resource management where the bandwidth in the uplink is identical to the bandwidth in the downlink (Col. 4, paragraph 42). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify the bandwidth allocation to estimate the uplink traffic to be the same as the downlink to make a more real-time based and flexible bandwidth allocation algorithm.

16.   Regarding **claims 13**, it is an apparatus claim corresponding to claim 4. Therefore, it is rejected for the same reasons as claim 4 respectively (see claim 4 above).

17.   Regarding claims 24, it is a system claim that corresponds to method claim 4. Therefore, it is rejected for the same reasons as claim 4.

18.   Claims **5 and 14, 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Love et al.** (US Publication 2004/0219917) in further view of **Patel** (US Patent No. 6697378).

19.   Regarding **claim 5**, Zimmerman teaches a method according to claim 1 (see claim 1 above).   Zimmerman fails to teach a step of estimating comprises estimating the traffic in the uplink to include an acknowledgement of the traffic in a downlink. In an analogous art, Love teaches a method of making use of the acknowledgement to determine the uplink transmission activity (Col. 7, paragraph 64). In addition, Patel also disclose that TCP uses window-based flow control in acknowledgement to advertise how much space the receiver has available for additional data (Col. 1 lines 60-67). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify the estimating traffic step to include an acknowledgement of the traffic of the downlink to provide a more efficient use resource.

20.   Regarding **claims 14**, it is an apparatus claim corresponding to claim 5. Therefore, it is rejected for the same reasons as claim 5 respectively (see claim 5 above). .

21.   Regarding claims 25, it is a system claim that corresponds to method claim 3. Therefore, it is rejected for the same reasons as claim 5.

22.   Claims **6 –7, 15 -16 and 26-27** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Haartsen**

(US Publication 2005/0048985).

23.   Regarding **claim 6**, Zimmerman teaches a method according to claim 1 (see

claim 1 above).   However, Zimmerman fails to teach the step of estimating

comprises estimating the uplink based upon a downlink traffic. In another analogous

art, Haartsen teaches a method of radio resource management where the bandwidth

in the uplink is identical to the bandwidth in the downlink (Col. 4, paragraph 42).

Therefore, it would have been obvious to a person of ordinary skill in the art at the

time of the invention was made to modify the bandwidth allocation to estimate the

uplink traffic to be based on the downlink to make a more real-time based and

flexible bandwidth allocation algorithm.

24.   Regarding **claim 7,** Zimmerman and Haartsen teach a method according to

claim 6 (see claim 6 above).   Haartsen further teaches the step of estimating

comprises estimating an uplink traffic to be an identical as a downlink traffic

(bandwidth in the uplink is identical to the bandwidth in the downlink, Col. 4,

paragraph 42).   Therefore, it would have been obvious to a person of ordinary skill in

the art at the time of the invention was made to modify the bandwidth allocation to

estimate the uplink traffic to be the same as the downlink to make a more real-time

based bandwidth allocation algorithm.

25.   Regarding **claims 15 and 16**, it is an apparatus claim corresponding to claim

6 and 7 respectively. Therefore, it is rejected for the same reasons as claim 6

respectively (see claim 6 and 7 above).

26.   Regarding claims 26-27, they are system claims that correspond to method

claims 6 and 7 respectively, therefore, they are rejected for the same reasons as

claims 6-7.

27.   Claims **8, 9, 17-18 and 28-29** are rejected under 35 U.S.C. 103(a) as being

unpatentable over **Zimmerman et al** (US Patent No. 6785252) in view of **Haartsen**

(US Publication 2005/0048985) in further view of **Patel** (US Patent No. 6697378).

28.   Regarding **claim 8**, Zimmerman and Haartsen teach a method according to

claim 6 (see claim 6 above).   However, they fail to teach a step of estimating an

uplink traffic to be an acknowledgement of the downlink traffic. In the same field of

endeavor, Patel also disclose that TCP uses window-based flow control in

acknowledgement to advertise how much space the receiver has available for

additional data (Col. 1 lines 60-67). Therefore, it would have been obvious to a

person of ordinary skill in the art at the time of the invention was made to estimating

the uplink traffic to be an acknowledgement of the traffic of 0the downlink to provide

a more efficient usage of resource.

29.   Regarding **claim 9**, Zimmerman and Haartsen teach a method according to

claim 6 (see claim 6 above).   However, they fail to teach a step of estimating

comprises estimating an uplink traffic to be identical as a downlink traffic together

with an acknowledgement of the downlink traffic. In the same field of endeavor,

Patel also disclose that TCP uses window-based flow control in acknowledgement to

advertise how much space the receiver has available for additional data (Col. 1 lines

60-67). In addition, it is known in the art that ACK can be sent by either uplink or

downlink in TCP transmissions. Therefore, it would have been obvious to a person

of ordinary skill in the art at the time of the invention was made to estimate the uplink

traffic to include both the ACK and data of the downlink to provide a more accurate

bandwidth allocation scheme.

30.   Regarding **claims 17-18**, they are apparatus claims corresponding to claims

8-9 respectively. Therefore, they are rejected for the same reasons as claims 8-9

respectively (see claims 8-9 above).

31.   Regarding claims 28-29, they are system claims that correspond to method

claims 8 and 9 respectively, therefore, they are rejected for the same reasons as

claims 8-9.

32.

33.   Claims **19** and 30 rejected under 35 U.S.C. 103(a) as being unpatentable

over **Zimmerman et al** (US Patent No. 6785252) in view of **Cave** (US Patent No.

6868273).

34.   Regarding **claims 19**, Zimmerman teaches all the limitations according to

claim 10 (see claim 10 above). However, he fails to teach a mobile communication

system in which the estimating means uplink and an uplink allocation resource are

provided in a radio access network. In analogous art Cave teaches that a RAN is

used to perform call admission control for allocation evaluation. Therefore, it would

have been obvious to a person of ordinary skill in the art at the time of the invention

was made to perform the estimating and allocation of the uplink resource at the

RAN.

35.   Regarding **claims 30**, it is an apparatus claim corresponding to claim 19.

Therefore, it is rejected for the same reasons as claim 19 respectively (see claim 19

above).

36.   Claims **20 and 31** is rejected under 35 U.S.C. 103(a) as being unpatentable

over **Zimmerman et al** (US Patent No. 6785252) in view of **Wallentin et al.** (US

Publication 2005/0013287).

37.   Regarding **claims 20**, Zimmerman teaches all the limitations according to

claim 10 (see claim 10 above). However, he fails to teach specifically a mobile

communication system in which the estimating means uplink and an uplink

allocation resource are provided in a serving General Packet Radio Service support

node. However, Wallentin teaches a method of improving efficient usage of radio

network resources (abstract), which may use any type of traffic control nodes, which

can be a serving support GPRS node **[0044]**. Therefore, it would have been obvious

to a person of ordinary skill in the art at the time of the invention was made to

estimate the bandwidth allocation at the SGSN.

38.   Regarding **claims 31**, it is an apparatus claim corresponding to claim 20.

Therefore, it is rejected for the same reasons as claim 20 respectively (see claim 20

above).

Response to Arguments

Applicant's arguments filed 5/30/07 have been fully considered but they are not

persuasive.

1.   Claim 1. (Currently amended) "A method comprising:

       estimating traffic in an uplink; and

       allocating uplink resources based on said step of *estimating* wherein the estimating is

performed <u>immediately</u> following the transmission of a signal in a *downlink.* "

Applicant argues on page 10 and 11 that Zimmerman does not teach the step

"wherein the <u>estimating</u> is performed <u>immediately</u> following the transmission of a

signal in a <u>downlink</u>".

Applicant's reasoning for the alleged missing limitation is,

    "Zimmerman directs that the **allocation of uplink** bandwidth is performed **before** the
    allocation of downlink bandwidth, and **that allocation** of resources **precedes**
    transmission, as explained at column 24, lines 15-67 of Zimmerman .... ".

The examiner notes that by providing a conclusion that Zimmerman teaches

the <u>uplink allocation</u> occuring <u>before</u> a <u>downlink allocation</u> does not really

prove the alleged missing limitation because the claim does not specifically

specify any particular order/sequence between the uplink allocation and the

downlink allocation step. Thus the provided reasoning of the sequence of

occurrence of the uplink and downlink allocation is irrelevant to the sequence

of occurrence between the estimate step and a downlink signal. All that is

required in the claim is "an estimate step" to occur immediately after a "downlink" signal. As long as the estimate step S934 occurs immediately after a Step 932 "downlink signal" occurs, then the claim limitation is met.

Applicant argues, "... **the allocation of uplink** bandwidth is performed **following** a signal (the request) from the CPE to the base station in Zimmerman, i.e. following an **uplink signal**. This is clearly distinguishable from the recitation of claim 1 that the *estimation* is performed following *the transmission of a signal in the downlink*. The words of claims must be construed as broadly as reasonable, but construing the claimed "downlink" to cover uplink signals is not reasonable."

Again, as addressed in claim 1 above, step 932 is treated as a "downlink " signal. Then step 934 is a bandwidth request which requires the CPE to estimate how much traffic it might uplink. The reason it is an estimate is because ultimately the BS will grant/allocate the uplink traffic based on the not only the CPE request/estimate but also other network conditions and available resources. Therefore, the bandwidth request indicates only an estimate of the traffic and not the actual amount of uplink traffic. Finally, the BS allocates the traffic based on the bandwidth request/estimate from the CPE and its own estimation of other conditions. Thus step 936 reads on the step of allocation uplink traffic based on the estimate step (or Step 934).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Lam whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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